Prevention

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Plotting a new course for cervical cancer screening in developing countries

The value of cytological screening for cervical cancer has been proved in developed countries. In developing countries, where the disease is more common and resources are scarce, cytological screening can be made more cost-effective by giving priority to women over 35 and by screening at intervals of 5–10 years rather than the usual 2–3 years. New approaches, such as visual inspection of the cervix by paramedical workers, should be tested for feasibility.

In a number of developed countries, early detection and screening programmes have reduced the incidence of invasive cervical cancer, and in properly screened populations the mortality attributable to the disease has fallen by up to 60% *(1–3)*. Data from 28 developed countries for 1960–80 indicate that cervical cancer is one of the few cancers for which an overall decrease in mortality has occurred *(4)*. In Iceland the aim is to prevent death from cervical cancer by the year 2000 through the extension of screening to hard-to-reach groups *(5)*.

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However, the majority of the world's cervical cancer patients are in the developing countries, where screening has failed to produce a significant reduction of the problem. Globally, cervical cancer is the fifth most common cancer, and of an estimated 460 000 new cases each year, three-quarters occur in developing countries *(6)*. Although breast cancer is the commonest tumour affecting women in the world as a whole, cervical cancer is the commonest in the developing countries. Approximately 71 600 new cases of cervical cancer, 16% of the world total, occur each year in India alone *(7)*.

Deficiences in screening programmes

Most cervical cancer screening programmes in developing countries reach only a small

fraction of the population, usually young urban women, since screening is often linked to family planning campaigns. The impact on cervical cancer mortality has consequently been marginal at best, since more than 90% of the tumours occur in women over 35 years of age.

Furthermore, it often happens that a large part of the scarce resources for screening are used to rescreen young women who have been diagnosed as having dysplasia of the cervix. Once a cellular change is found, e.g., moderate to severe dysplasia, the affected woman has to return for repeated tests. This arises because, in many cases, it is difficult to tell whether dysplastic cellular changes are caused by infection or incipient cancer. The same young women, mostly from urban areas, are rescreened and the programmes do not reach other women at risk. Unspecific cellular changes are more common, and cancers are more rare, in younger women than in women over the age of 35. It can be argued that each rescreening of a case of previously diagnosed dysplasia prevents the screening of an unscreened woman at high risk. Even in developed countries there has been a failure of screening programmes that provide only cytological services and do not concentrate on reducing mortality by reaching older women *(8)*.

Realistic screening

When resources are limited, the setting of priorities becomes very important *(9)*. Ideally, of course, all sexually active women should be screened regularly. However, in developing countries it is important to adopt potentially cost-effective strategies involving priority-setting; it is unrealistic to imitate screening programmes of developed countries. Possible ways of improving the efficacy of screening in developing countries are described below.

Older women

The first routine screening should be performed at 35 instead of 20 years of age. By changing the range of ages for screening from 20–65 to 35–55, the number of women to be screened would diminish by half, given the age structure in many developing countries. Furthermore, the average number of times each patient was screened would be considerably reduced.

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The restriction of screening to older women was advocated in 1966 for a developed country on the grounds that invasive cervical cancer had a pre-invasive stage lasting between 5 and 10 years, that only 10–20% of changes interpreted as carcinoma *in situ* became invasive cancer, and that only 8% of cervical cancers occurred before the age of 35 years *(10)*.

Reduced frequency

A policy of covering the largest possible number of women at risk at least once is preferable to no policy or to rescreening the young, which is what usually happens. The aim should be to screen every 10 years because this reduces the risk of invasive cervical cancer by nearly two-thirds *(11, 12)*. Instead of screening every 2–3 years as is conventional, therefore, a frequency of

5–10 years could be adopted in countries where resources are limited and cost-benefit has to be considered.

Visual screening

Cytological screening of all adult women will be impossible for years to come in most developing countries. At present, most women who attend for treatment have late incurable cervical cancer. As the survival rate after the treatment of early tumours is high, studies are being made on "down-stage" screening, i.e., detection of the disease in an earlier stage when still curable, by nurses and other nonmedical health workers using a simple speculum for visual inspection of the cervix. Comparable investigations were made in Sri Lanka into the early detection of oral cancer by visual inspection of the mouth by primary health care workers *(13)*.

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For many developing countries with adequate treatment facilities, screening for therapeutically controllable clinical cancers could be more realistic than searching for pre-invasive lesions.

The example of India

It is estimated that in India, even with a major effort to expand cytology services, not more than 25% of women at high risk could be screened by the year 2000 *(14)*. The proportion of women aged 20–65 who are between 20 and 34 years of age varies from 52% to 57% in the Bangalore, Bombay and Madras regions. By changing the age range for screening from 20–65 years to 35–55, only half as much screening would be required; and it is worth noting that the number of cervical cancers occurring in the 20–34-year age group is estimated to be only about 7% of the total in the country. By increasing the screening interval from 2–3 years to 5–10 years it would be possible to cut in half once again the number of screenings needed.

The above approaches could open the way to nationwide screening for cervical cancer within the next decade. Although the modified procedure would be only about 60% as effective as what would be attainable with unlimited resources, it would have a reasonable chance of reducing mortality.

The efficacy of existing therapy could be further improved if, in areas without adequate cytology resources, cancers could be referred at an earlier stage. The stage at which a cancer is discovered has a much greater positive prognostic significance than any treatment given at a later stage. All 106 medical colleges in India have surgical and gynaecological facilities, although only 43 have radiotherapy. Since there is no difference in curative effect between surgery alone and radiotherapy alone for early stages of the disease, curative therapy for such cases is realizable in India. The Indian Council for Medical Research, in collaboration with the World Health Organization, is starting feasibility studies on early visual detection, in which female paramedical workers are trained to recognize cervical erosions.

Criteria for action

Cervical cancer is a major cause of mortality among women in developing countries, where the resources for full-scale cytological screening are often lacking. However, it may become possible for these women to benefit from existing knowledge of the disease if the three measures outlined above are introduced: raising the minimum age for cytological screening to 35 years; changing the frequency of screening from 2–3 to 5–10 years; and examining the feasibility of early diagnosis of visible tumours. □

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